evaluate the accuracy of a fully automatic approach for QT duration evaluation.

**Methods:** 12-lead digital ECG Holter were recorded in 38 healthy subjects (27 males, mean age=27.4±8.0 years) on baseline conditions (day 0) and after administration of 160 mg (day 1) and 320 mg (day 2) of d-l Sotalol. For each 24-hour period and each subject, ECGs were extracted every 10 minutes during the 4-hour period following drug dosage. Ventricular repolarization was characterized using 3 biomarker categories: conventional ECG time intervals, Principal Component Analysis (PCA) analysis on the T-wave, and fully automatic biomarkers computed from a mathematical model of the T-wave.

**Results:** QT interval was significantly prolonged starting 1h20 minutes after drug dosing with 160 mg and 1h 10 minutes after drug dosing with 320 mg. PCA ventricular repolarization parameters sotalol-induced changes were delayed (>3 hours). After sotalol dosing, the early phase of the T-wave changed earlier than the late phase prolongation. Globally, the modeled surrogate QT paralleled manual QT changes.

The duration of manual QT and automatic surrogate QT were strongly correlated ($R^2$=0.92, p<0.001). The Bland & Altman plot revealed a non-stationary systematic bias (bias =26.5ms ±1.96*SD = 16ms).

**Conclusions:** Changes in different ECG biomarkers of ventricular repolarization display different kinetics after administration of a potent potassium channel blocker. These differences need to be taken into account when designing ventricular repolarization ECG studies.

## 207

### Incidence and clinical significance of the asssociation of paroxysmal supraventricular and ventricular tachycardia

Béatrice Brembilla-Perrot, Jean Marc Sellal, Nicolas Sadoul, Hugues Blangy, Arnaud Terrier De La Chaise, Olivier Claudon, Olivier Selton, Pierre Louis, Laurent Groben, Pierre Yves Zinzius, Lucian Muresan, Sonia Magalhes, Fabrice Duhoux, Karim Djaballah, Leice Darwiche
*CHU of Brabois, Cardiologie, Vandoeuvre Les Nancy, France*

Fine-QRS complex tachycardia alternating with wide-QRS complex tachycardia can lead to an erroneous diagnosis of paroxysmal supraventricular tachycardia (SVT) with or without aberrancy. The purpose of the study was to evaluate the incidence and the significance of the association of SVT and ventricular tachycardia (VT) in the same patient.

**Population:** 898 patients aged from 11 to 88 years were consecutively admitted for a sustained VT; 818 patients had associated heart disease (history of myocardial infarction 374, idiopathic dilated cardiomyopathy 69, arrhythmogenic right ventricular dysplasia 86, miscellaneous 289) and 80 had no apparent heart disease.

**Methods:** Electrophysiological study including programmed atrial and ventricular stimulation, 2D cardiac echocardiography, coronary angiography in patients older than 40 years, right ventricular angiography and cardiac RMI since 2002, were performed in these patients.

**Results:** Fifteen patients presented (2 %) with either SVT or VT. All SVT's were related to an atrioventricular node reentrant tachycardia (AVNRT). The association of SVT and VT was significantly more frequent in patients without heart disease and with verapamil-sensitive VT (n=6/80, 7.5 %)(<0.001), arrhythmogenic heart disease (n=4/86, 5 %)(0.05) than in those with myocardial infarction (n=4/374, 0.1 %) or dilated cardiomyopathy (n=0). Among 692 patients with AVNRT, 39 had associated heart disease and only 5 have both tachycardias. Radiofrequency ablation of AVNRT performed in all patients did not change the recurrence of VT which required ablation in 3 patients and the implantation of antitachycardia device with defibrillator in 2 patients.

**Conclusion:** The association of SVT and VT is rare in patients with heart disease except in those with arrhythmogenic right ventricular dysplasia. The association is more frequent in patients without heart disease diagnosis and could be underestimated; fine QRS complex tachycardia alternating with wide QRS complex tachycardia leads generally to the erroneous diagnosis of SVT with or without aberrancy.

## 208

### Long-term effects of implanted cardioverter defibrillators appropriate and inappropriate shocks, mortality and hospitalization

Gwénaëlle Lhéritier (1), Anahita Kowsar (2), Henri Bonnabau (3), Patrick Blanc (4), Patrice Virot (4)
*(1) CHRU Dupuytren, Réanimation, Limoges, France – (2) Clinique du Colombier, cardiologie, Limoges, France – (3) Faculté de médecine, Limoges, France – (4) CHRU Dupuytren, cardiologie, Limoges, France*

Implantable cardioverter defibrillaror (ICD) is the gold standard therapy for patients at high risk for ventricular tachyarrhythmias in secondary and primary prevention.

Patients with an ICD implanted for primary or secondary prevention were selected from a single-center registry between Jan99-Dec 08. 359 pts (312 men, age 63±12.4years) received consecutively 432 ICD. Among them 217 (60%) have an ischemic heart disease. It was a primary indication in 30% and a secondary in 70% of cases.72 pts (22%) received one or more appropriate shock and 27% efficacy antitachycardia pacing. Secondary indication (RR=7,8; 95%CI: 2,63-23,25), treatment with amiodarone (RR=2.5; 95%CI: 1.34-4.99) and low left ventricular ejection fraction LVEF (<30%) (RR=1.9; 95% CI: 1.02-3.64) predicted appropriate shock occurrence. There were 63 deaths. Heart failure is the major event for hospitalization and remained the predominant mode of death. Predictors of mortality in multivariate modeling included LVEF, increasing age and the use of another treatment than beta-blocker single use. One or more appropriate shock seems to promote the mortality.

During the follow up, complication occurred in 33% of cases: one or more inappropriate shock n =58 (16%), 36 leads dislodgment, 28 haematomas, 8 infections, 7 leads failure, 4 device failure, 2 pneumothorax, 2 subclavian thrombosis and 7 others.

Prior atrial fibrillation (RR=2.2; 95% CI: 1.12-4.32) and a secondary indication (RR=2.83; 95% CI: 1.27-6.30) predicted inappropriate shock occurrence. The incidence of inappropriate interventions was not dependent on the type of ICD (VVI vs. DDD).

**Conclusions:** Infection can be the most important complication, leading to the system removal. Inappropriate ICD shocks are common adverse consequences that may impair quality of life, may cause hospitalizations and limit cost-effectiveness. Preventive measures are required to optimize quality of life of patients with ICD.

## 209

### How automatic algorithms are used in daily medical practice in dual chamber pacemaker recipients? Intermediate results from a prospective registry

Pierre Le Franc (1), Jacques Casassus (2), Karim Bel Hadj (3), Olivier Bizeau (4), André Guillemot (5), Jean-Luc Rey (6), Nicolas Delarche (7), Pierre Bienvenu (8), Olivier Gartenlaub (9), Laure Coutrot (10)
*(1) Clinique Saint Hilaire, Rouen, France – (2) Clinique Cardiologique, Aressy, France – (3) Clinique Louis Pasteur, Essey Les Nancy, France – (4) Hôpital La Source, Orleans, France – (5) Hôpital Général, Dinan, France – (6) Hôpital Sud, Amiens, France – (7) Hôpital Général, Pau, France – (8) Centre Hospitalier, Laval, France – (9) Clinique A. Brillard, Nogent Sur Marne, France – (10) Boston Scientific France, Montigny-Le-Bretonneux, France*

**Objective:** Automatic algorithms in pacemakers (PM) allow continuous adaptation of settings to patients' clinical conditions. Some are dedicated to pacing and others to sensing. One of the objectives of BELUGA on-going, international, prospective registry was to evaluate the use of automatic algorithms available in Insignia™ PM in current medical practice.

**Methods:** The percentage (%) of activation of atrio-ventricular search hysteresis algorithm (AVSH), dynamic AV delay (DynAVD), automatic atrial/ventricular sensing (AAS/AVS), ventricular automatic capture (VAC) and the % of use of automatic ventricular threshold test during patients assessment

▶